THE OCCURRENCE OF A STERNAL GLAND IN ORANG-UTAN

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[*Plate 14*]

During the examination of a fetal male orang-utan (crown-rump length 145 mm.),[1] in which the lanugo was still for the most part microscopic, the author's attention was attracted to a small circular pit in the middle of the smooth skin of the chest. This pit was easily visible and a closer study proved beyond doubt that it was not due to injury, but was evidently a natural opening in the skin. An older male orang-utan fetus, near term (crown-rump length 230 mm.),[2] showed the same pit at a corresponding place on the chest (see figure 1). From this specimen an area of skin, including the pit, was removed and sectioned. The histological examination of the sections cleared up the nature of this structure. It was found to be the opening for a considerable number of large sebaceous glands conglobated beneath. The pit is situated in the midsagittal plane, slightly above a line connecting the nipples, and overlies the manubrium sterni. Based upon their location the gland may be termed *sternal gland* and its opening *sternal pit.*

The examination of a total of twenty-three specimens of orang-utan ranging in age from fetuses to very old specimens and including both sexes, revealed some interesting facts regarding the occurrence of this sternal gland. The author wishes to express his sincere thanks to Mr. G. S. Miller for his kind permission to study five preserved orang-utan fetuses and newborns and a number of adult skins in the National Museum; to Mr. N. Hollister for the opportunity to examine the orang at the National Zoological Park; to Mr. R. L. Ditmars for information regarding the orang at the New York Zoological Park; and to Dr. E. Huber for his careful notes on some preserved orangs of the University in Zürich.

The gland was found to be present in 12 out of 13 males and in 2 out of 10 females. The only male in which it was missing was a very old specimen, and this, together with the fact that in the fairly old orangs the pit was relatively much smaller than in the juveniles, would indicate that the gland degenerates gradually with advancing age. The only two females in which the pit was present were juveniles, the fetal,

[1] No. 143597 U. S. Nat. Mus.
[2] No. 153973 U. S. Nat. Mus.

infantile, and adult females showing no trace of it. It seems probable, therefore, that, while the sternal gland may develop in the female, it apparently does so in only a small percentage of cases. Its constant presence in males, with the exception of very old animals, and its sporadic occurrence in females tends to substantiate the assumption that we have to deal here with a secondary sexual character. However, the fact that this gland is found as early as the middle of fetal life does not conform readily to this theory.

The sternal pit is most evident in fetuses, where its umbilicated opening reaches a diameter of 2.5 mm. The skin patterns are arranged in circles around it and become very much finer and smaller immediately surrounding it. In juvenile specimens a low circular wall is frequently found at the edge of the actual pit. At this age and later most males have a round, dark brown pigmented spot, sharply circumscribed, with the sternal pit in the center. In the fetus, also, sections show a slight increase in pigment at the periphery of the pit, but a large accumulation of pigment does not occur until later in life. In some instances the sternal pit was not circular but oblong, in which case the longest diameter was always horizontal. Its depth in juvenile specimens was in several instances 2 mm. and amounted in one case to even 3.5 mm. In old males the pit is very difficult to find, due to the fact that it is almost always covered by long hair and hidden among the wrinkles of the skin or beneath the folds of the laryngeal pouches. The difficulty of detecting the gland in the full-grown animals, where the pit also is relatively smaller and shallower than in juvenile and fetal specimens, probably accounts for the fact that it has not, so far as the author can ascertain, been previously described. An important feature of the sternal gland is its constant position, which varies only within a few millimeters above or below a line connecting the nipples, and which always lies exactly in the midsagittal plane.

Figure 2 shows a section through the skin containing the sternal gland of the fetus shown in figure 1. The sections were cut in a perpendicular direction. One can see a canal emptying into the bottom of the spacious pit; beneath lie the large sebaceous glands. A study of all the sections showed that a number of these glands have one joint outlet, but there are also many others with minor separate openings into the pit. The sweat glands surrounding the pit seem to be unusually numerous and of more than average size. In several cases microscopically fine hairs can be observed on the edge, and in one instance at the bottom of the pit.

In one juvenile male orang, in the National Zoo, one can feel the glandular body, which is approximately the size of a pea, beneath the pit. After some palpation a tiny drop of apparently crystal fluid exudes from the opening.

In conclusion it may be stated that during the examination of a considerable number of preserved bodies of fetuses and adults of many different species of monkeys and apes no trace of anything comparable to this sternal gland in the orang-utan was found. It seems certain that this gland is not present in the adult chimpanzee, gorilla or gibbon, nor in the last mentioned in a fetal stage. It is impossible at present to say what purpose the sternal gland in the orang may serve. The odor of its secretion and the time of its maximum functioning would probably throw light on this question. An accumulation and concentration of glands in the region of the chest is known to occur in marsupials (*Myrmecobius*, *Didelphis*, *Trichosurus*, and *Petaurus*), where their opening lies for the most part in a hairless region. Some forms of Chiroptera likewise have large glands in the middle of the chest. In these mammals also, the glands are more strongly developed in, or even entirely restricted to the male.

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